Dr. T. James Symons
Chairman
DOE/NSF Nuclear Science Advisory Committee
Lawrence Berkeley National Laboratory
Berkeley, CA 94720

Dear Dr. Symons:

This letter requests that the DOE/NSF Nuclear Science Advisory Committee (NSAC) conduct a new study of the opportunities and priorities for U.S. nuclear physics research and recommend a long range plan that will provide a framework for coordinated advancement of the nation's nuclear research programs over the next decade. Previous NSAC Long Range Plans (LRP), in particular the 1996 LRP, are appropriate and important reference documents. Please submit an interim report containing the essential components of NSAC's recommendations to the Department of Energy (DOE) and the National Science Foundation (NSF) by April 15, 2001, and the final report by October 1, 2001.

Since the submission of the NSAC 1996 LRP, major investments at TJNAF/CEBAF, BNL/RHIC and MSU/NSCL, as well as at our other user facilities, have significantly expanded our national capabilities for nuclear physics research. Major detectors have been or are in the process of being implemented at both accelerator and non-accelerator facilities to exploit many promising opportunities. University research programs and facilities, including the Institute of Nuclear Theory, continue to play important and critical roles in the nation's nuclear physics program. These capabilities and the priorities in the national program today are a consequence of the nuclear science community's responsible and visionary strategic planning embodied in the previous NSAC LRP.

The new NSAC plan should identify the most compelling scientific opportunities to be addressed in the next decade and the resources that will be needed to address them. It is important that the priorities of the identified scientific opportunities be well articulated. The required resources should include both people (the investigator community) and tools (capitalizing on recent investments and investing for the future). To be most helpful, the plan should indicate what funding levels would be required (including construction of new facilities) to maintain a world-leadership position in nuclear physics research, and what the impacts and priorities should be if the funding available provides constant level of effort (FY 2001 President's Budget Request) into the outyears (FY 2002-2012).

As RHIC construction is now complete, it is timely that the community consider new major facilities to address emerging scientific opportunities. In the 1996 LRP, NSAC recommended construction of a "next generation ISOL-type facility" to be "constructed when RHIC construction is substantially complete." The plan should evaluate the scientific potential of the proposed Rare Isotope Accelerator and any other new proposed facilities in the broad context of the most compelling scientific questions, as well as the availability of existing and planned facilities, and establish priorities for new construction.

Your effort should lead to a coordinated long range plan for the synergistic DOE and NSF programs in nuclear physics, recognizing the different roles of the two agencies in building and operating forefront national facilities for users, in supporting university-based research, and in science education.

To maintain the U.S. position of leadership, the facilities available in other nations should be taken into consideration, and the new NSAC plan should point out the opportunities for increased cooperation with other countries on projects of mutual interest. An important dimension of your plan should be the role of nuclear physics in advancing the broad interests of society, and how mutually beneficial interactions with neighboring basic research disciplines, such as astrophysics, and with applied disciplines can be strengthened. The possible opportunities for nuclear physics research from the anticipated advancements in computing capabilities in the next decade should be addressed.

Education of young scientists is central to the mission of both agencies and is integral to any vision of the future of the field. We ask NSAC to articulate the importance of education in nuclear science to academia, to medicine, to defense, to industry, and to government. We ask further that NSAC analyze the effectiveness and appropriateness of current graduate programs in nuclear science in preparing future generations of scientists, to articulate the role that the nuclear science research community presently plays in addressing broad educational needs of national concern, including diversity issues, along with strategies for strengthening these roles in a way that makes optimal use of the resources of the community.

In the 1989 and 1996 LRP, the Division of Nuclear Physics of the American Physical Society (DNP/APS) was instrumental in obtaining broad community input by organizing town meetings of different nuclear physics sub-disciplines. The Division of Nuclear Chemistry and Technology of the American Chemical Society (DNC&T/ACS) was also involved. We encourage NSAC to exploit this method of obtaining widespread input again, and to further engage both the DNP/APS and DNC&T/ACS in laying out the broader issues of contributions of nuclear science research to society.

The agencies very much appreciate NSAC's willingness to undertake this task. As you recognize, NSAC's previous long range plans have played a critical role in shaping the nation's nuclear science research effort. Based on NSAC's laudable efforts in the past, we look forward to a new plan that can be used to chart a vital and forefront scientific program into the next decade.

Sincerely,

James F. Decker
Acting Director
Office of Science
Department of Energy

Robert A. Eisenstein
Assistant Director
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